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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/625,135	07/25/2000	Robert M. Japp	EN9-99-082	8471

7590

08/27/2003

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EXAMINER

TUGBANG, ANTHONY D

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 08/27/2003

15

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/625,135

Applicant(s)

JAPP ET AL.

Examiner

A. Dexter Tugbang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 1-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The applicants' amendment filed 6/4/03 (Paper No. 15) has been fully considered and made of record.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Election/Restrictions

3. Claims 1-7 continue to stand as being withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 4.

Claim Rejections - 35 USC § 102

4. Claims 8, 11-13 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoffarth et al 4,868,350.

Hoffarth discloses a method of fabricating a laminating circuit structure assembly comprising: providing two modularized circuitized voltage plane subassemblies 20 (in Fig. 4) having two signal planes 19 disposed about an internal voltage plane 13; providing a dielectric material 11b, 11c between the signal and voltage planes; providing a dielectric material 11a, 11d on each external surface of each signal plane 19; providing a non-cured dielectric composition (middle layer between cores 20 in Fig. 4) between the subassemblies; aligning and laminating the subassemblies to cause bonding of the subassemblies (see col. 4, lines 45+). The dielectric

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material comprises of layers 11a-11c and the middle layer which bonds the cores 20, all of which are the same dielectric material of chlorotrifluoroethylene as suggested by Hoffarth first at col. 4, lines 26-32 and then at col. 4, lines 45-49.

Regarding Claims 11-13, Hoffarth teaches forming vias 15 through the signal planes and subassemblies (see Fig. 4), which is plated with a conductive metal 16 (see col. 4, lines 5-7). This conductive metal 16 can also be said to be a “conductive adhesive” since in Figure 4, it adheres to the inner walls of the vias 15.

Regarding Claim 16, at the top and bottom of the vias (in Fig. 4), Hoffarth shows “top and bottom circuit layers”.

Claim Rejections - 35 USC § 103

5. Claims 9, 10, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffarth et al in view of Suzuki 4,755,911.

Hoffarth discloses the claimed manufacturing method as relied upon above and further including forming the internal circuitry of copper (see col. 4, lines 37-42). It is noted that each circuit core 20 of Hoffarth can be read as an interposer comprising of dielectric layers disposed about an internal electrically conductive layer. However, Hoffarth does not teach locating an interposer between the subassemblies with the interposer comprising of dielectric layers disposed about an internal electrically conductive layer.

Suzuki suggests that interposers 2, 3, 4 can comprise of more than two assemblies that are aligned and bonded. The interposers (circuit cores 2, 3, 4 in Fig. 1) can be made of three

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assemblies that are aligned, laminated and bonded together for the advantages of avoiding delays in transmission signals in laminated circuit structure assemblies (see col. 1, lines 10-22).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the two modularized circuitized voltage plane subassemblies of Hoffarth into three modularized circuitized voltage plane subassemblies with the middle subassembly being read as an interposer, as taught by Suzuki, to positively avoid delays in electrical transmission signals in the subassemblies.

With respect to Claim 15, the thickness of the interposer is considered an effective variable formation of the laminated circuit structure and it would have been obvious to one having ordinary skill in the art at the time the invention was made to have formed the interposer of either Hoffarth or Suzuki to a thickness between about 3 to 10 mils, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Furthermore, the relative thickness of the interposer does not provide a manipulative difference in the claimed fabricating method as compared to the prior art above.

6. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffarth et al in view of Burger et al 4,788,766.

Hoffarth discloses the claimed manufacturing method as relied upon above. Hoffarth does not teach laminating at the specific claimed ranges of pressure, temperature and time as recited in Claim 17.

Burger teaches laminating subassemblies with examples of at least a temperature of 156 deg. C, a time of 15 minutes, and a pressure of 125 psi, which falls within the claimed ranges

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detailed in Claim 17. The benefits of the specific temperature, time and pressure of Burger provides lamination of subassemblies at very low temperatures and pressures (see col. 1, lines 56-58).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Hoffarth by utilizing the temperature, time and pressure ranges taught by Burger, to positively allow lamination and manufacturing of the subassemblies to occur at very low temperatures and pressures.

Response to Arguments

7. Applicant's arguments with respect to claims 8-17 have been considered but are moot in view of the new ground(s) of rejection. It is noted that new grounds of rejection set forth above is necessitated by the new limitations in Claim 8 that more specifically require that the dielectric material between the signal planes is of the same material as the dielectric material of the non-cured dielectric composition.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 703-308-7599.

The examiner can normally be reached on Monday - Friday 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.


A. Dexter Tugbang
Primary Examiner
Art Unit 3729

August 22, 2003